

IN THE CLAIMS:

Please amend the claims as follows:

1-24. (Canceled)

25. (Previously presented) A method comprising:

maintaining an active map of information indicating in-use blocks and free blocks of an active file system in a storage system;

maintaining a set of snapshots in the storage system, each snapshot representing a state of said active file system at a particular point in time, each snapshot having a corresponding active map indicating in-use blocks and free blocks of the active file system for a point in time at which said snapshot was generated;

computing a summary map as a logical union of the active maps of at least two of said snapshots; and

using the summary map to make write allocation decisions in the storage system.

26. (Previously presented) A method as in claim 25, further including:

making write allocation decisions in said file system based on said summary map.

27. (Previously presented) A method as in claim 25, wherein

said summary map is computed using an inclusive OR operation.

28. (Original) A method as in claim 25, wherein  
said set of snapshots includes at least two said snapshots; and  
said computing includes performing a bitwise logical operation on at least two  
said copies of earlier active maps included in said set of snapshots.

29. (Previously presented) A method as in claim 25, wherein using the summary  
map to make write allocation decisions in the storage system comprises:  
making write allocation decisions based on both a current active map of the  
active file system and said summary map.

30. (Previously presented) A method as in claim 25, wherein using the summary  
map to make write allocation decisions in the storage system comprises:  
computing a combination of a current active map and said summary map; and  
making write allocation decisions based on a result of said computing.

31. (Previously presented) A method as in claim 25, further including, for a  
selected portion of said summary map  
identifying a set of snapshots created since a recent update of said selected  
portion; and  
updating said selected portion based on only a most recent one of said  
snapshots.

32. (Previously presented) A method comprising:

maintaining an active map of information indicating in-use blocks and free blocks of an active file system;

maintaining a set of snapshots, each snapshot representing a state of said active file system at a particular point in time, each snapshot having a corresponding active map indicating in-use blocks and free blocks of the active file system for a point in time at which said snapshot was generated;

maintaining a summary map based on an active map of at least one of said snapshots;

receiving a request to delete a particular snapshot; and

deleting said particular snapshot, wherein said deleting involves, for a block used by said particular snapshot, indicating said block is free in said summary map depending on a snapshot just prior to said particular snapshot and a snapshot just after said particular snapshot.

33. (Previously presented) A method as in claim 32, wherein said indicating frees said block only when both

said block is unused by said snapshot just prior to said particular snapshot; and

said block is unused by said snapshot just after said particular snapshot.

34. (Previously presented) A method as in claim 32, wherein said snapshot just after said particular snapshot corresponds to an active file system.

35. (Previously presented) A method comprising:

maintaining an active map of information indicating in-use and free blocks associated with a file system;

maintaining a set of snapshots, each snapshot representing a state of said file system at a particular point in time;

maintaining a summary map computed as a logical union of active maps included in at least two of said snapshots;

selecting a set of blocks maintained by said file system for which to perform a write allocation operation;

updating only a portion of said summary map corresponding to said set of blocks, in response to said selecting; and

performing said write allocation operation in response to said updated summary map.

36–39. (Canceled)

40. (Currently amended) A file-system-method as in claim 35, wherein said summary map is computed using an inclusive OR operation.

41. (Previously presented) A method as in claim 32, wherein said summary map represents a logical union of at least two copies of an earlier active map included in at least two of said snapshots.

42. (Previously presented) A method as in claim 41, wherein said logical union is an inclusive OR operation.

43. (Previously presented) A method comprising:  
maintaining an active map of information indicating in-use blocks and free blocks associated with a file system;  
maintaining a plurality of persistent point-in-time images, each persistent point-in-time image representing a state of said file system at a particular point in time; and  
generating a summary map as a logical union of active maps included in at least two of said persistent point-in-time images.

44. (Previously presented) A method as in claim 43, further including:  
making write allocation decisions in said file system based on said summary map.

45. (Previously presented) A method as in claim 44, wherein  
said summary map is computed using an inclusive OR operation.

46. (Previously presented) A method as in claim 43, wherein said generating includes performing a bitwise logical operation on at least two said copies of earlier active maps included in said set of persistent point-in-time images.

47. (Previously presented) A method as in claim 43, further including:

making write allocation decisions based on both a current active map and said summary map.

48. (Previously presented) A method as in claim 43, further including:  
determining a combination of a current active map and said summary map; and  
making write allocation decisions based on a result of said computing.

49. (Previously presented) A method as in claim 25, wherein using the summary map to make write allocation decisions in the storage system comprises using the summary map to avoid overwriting blocks used by a snapshot.